UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
JUNTIMA, NITTAYA

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>24 January 2006</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-24</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) <u>1-11 and 24</u> is/are allowed.

6) ☒ Claim(s) <u>12,14 and 16-21</u> is/are rejected.

7) ☒ Claim(s) <u>13,15,22 and 23</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>24 January 2006</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>1/24/06</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the amendment filed on 1/24/06.

2.   The objections to the drawings, specification, and claims are withdrawn in view

of applicant's amendment.

3.   Claims 1-11, and 24 are allowed.

4.   Claims 12, 14, 20, and 21 are rejected under 35 U.S.C. 102(e).

5.   Claims 16-19 are rejected under 35 U.S.C. 103(a).

6.   Claims 13, 15, 22, and 23 are objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

Claim Objections

7.   Claims 17, 18, 19, 21, and 22 are objected to because of the following informalities:

- in claim 17, lines 2 and 3, "standard" should be removed to avoid lack of antecedent

basis;

- in claim 18, line 1, "standard" should be removed to avoid lack of antecedent basis;

- in claim 19, line 1, "standard" should be removed to avoid lack of antecedent basis;

- in claim 21, line 1, "disabling" should be inserted following "puncturing" and

"substantially" should be deleted to avoid any confusion;

line 2, "the" should be changed to "a;"

- in claim 22, line 1, "size" should be deleted to avoid lack of antecedent basis;

line 2, "the" should be changed to "a."

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   Claims 12, 14, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Koehn

et al. ("Koehn") (USPN 6,819,718 B1).

       Regarding claim 12, as shown in Fig. 2, Koehn teaches a frame matching method for use

in a communication system (Fig. 2) which includes at transmitting device (6'-18, collectively),

an encoder (EN in Fig. 3), a rate matching device (the rate converter 12 Figs. 2 and 3), the

method comprising the steps of:

       a)   obtaining a data set (the encoded data frame EF is generated and fed into the

puncturer PR, col. 5, ll 26-37);

       b)   selecting a transmission data frame (a transport data block) from a plurality of

standard data frames (a transport data block 14 has a pre-determined size of an amount of data

which can be carried by bursts of data, col. 1, ll 43-48 and col. 4, ll 66-col. 5, ll 4, therefore, the

size of the data block 14 must be selected from a number of sizes that can carry busts of data as

part of the size determination);

       c)   determining whether data repetition is required for matching the data set to the

transmission frame, and if so, performing data repetition (col. 5, ll 26-31, see also col. 1, ll 48-56);

d) determining whether data puncturing is required for matching the data set to be the transmission data frame, and if so, performing data puncturing by puncture disabling techniques (the selection algorithm which does not puncture when e < 0) (col. 5, ll 26-30 and col. 6, ll 19-53, see also col. 1, ll 48-56).

Regarding claim 14, Koehn teaches determining whether a data length associated with the data set is according to following equation: $L < N2$, wherein L (the size of the encoded data frame) is the data length associated with the data set and N2 (the size of the transport block) is the transmission data frame (bits of the encoded data frame are repeated when the encoded data frame is smaller than the pre-determined size of the transport block, col. 5, ll 26-31, see also col. 1, ll 48-56, col. 6, ll 19-53 and Fig. 5).

Regarding claim 21, Koehn further teaches that the puncturing disabling techniques are restricted to puncturing puncture pattern groups (groups of 10 and 8 bits) of data elements (bits) according to a standard puncturing pattern (a puncturing pattern for 98 bits where 16 bits are punctured).

10.   Claim 20 is rejected under 35 U.S.C 102(e) as being anticipated by Lee et al. ("Lee") (USPN 6,621,873 B1).

Regarding claim 20, as shown in Fig. 5, Lee teaches a coder system (Figs. 1 and 3), wherein a communication system (a mobile communication system, col. 4, ll 6-10) includes one transmitting device (since frame is transmitted from a puncturing device in Fig. 3, therefore, a transmitting device must be inherently included in a mobile communication system, col. 4, ll 6-

10) and one receiving device (since frame is transmitted from a puncturing device in Fig. 3,

therefore, a receiving device must be inherently included in a mobile communication system, col.

4, ll 6-10), and wherein the transmitting device includes an encoder (Fig. 1, col. 4, ll 57-64) and a

rate matching device (a puncturing device in Fig. 3) for matching data into a standard data frame,

the coder system comprising:

a) means (frame generator 133, Fig. 3) for obtaining a data set (data input from

the turbo encoder in step 501 of Fig. 5) and the standard data frame (a frame according to symbol

rate as a result of step 505, col. 4, ll 57-64), wherein the data set comprises a plurality of

puncture pattern groups (5 symbol frames and 6 tail symbols part, col. 4, ll 57-64);

b) means (controller 135, Fig. 3) for determining a standard puncture pattern (a read

pattern from the patterns shown in Figs. 4A-4C) and a puncture disable quantity (symbols that

are not punctured in a read pattern which is part of the patterns as shown in Figs. 4A-4C) based

upon the data set obtained in step (a) (a corresponding puncturing pattern is read in step 504

upon detecting a code rate of the received data, col. 6, ll 8-18);

c) means (controller 135 and frame generator 133, Fig. 3) for matching the data set into

the standard data frame utilizing the standard puncture pattern and the puncture disable quantity

obtained in step (b) (col. 6, ll 18-31, see also col. 5, ll 1-7).

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12.   Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koehn et al.

("Koehn") (USPN 6,621,873 B1) in view of an art of record, TIA/EIA/IS-2000.2-A-1

("TIA/EIA").

Regarding claim 16, as shown in Fig. 3, Koehn teaches a coder (a rate matching converter

12), including:

a)   an input node (an encoder EN for inputting data info the puncturer PR, col. 5, ll 34-

36) for receiving a data set comprising a plurality of puncture pattern groups (pucture pattern

groups read on encoded data frame which must comprising groups of bits);

b)   a puncturing pattern device (a puncturer PR), operatively coupled to the input node,

to puncture the data set (col. 5, ll 34-36);

an output node (an output port that transmits the transport block 14 to a radio access

processor 16 shown in Fig. 2), operatively coupled to the standard puncturing pattern device,

capable of outputting data from the puncturing pattern device (col. 5, ll 38-39).

However, Koehn fails to teach that the puncturing pattern device punctures the data set in

accordance with a standard puncturing pattern and in accordance with an alternative puncturing

pattern differing from the standard pattern only by disabling puncture of an individual data

element that would be punctured according to the standard pattern.

TIA/EIA, as shown in Table 2.1.3.1.6.2-1, teaches Turbo Code symbol puncturing

technique used in a cellular network including a base code rate of ½ having a standard

puncturing pattern (not defined, reads on pattern "111110101") and an alternative puncturing

pattern (not defined, reads on pattern "111111111") differing from the standard pattern only by

disabling puncture of an individual data element (6th and 7th bits) that would be punctured

according to the standard pattern (page 2-116, ll 9-18).

Given the teaching of TIA/EIA, it would have been obvious to one skilled in the art at the

time the invention was made to modify the teaching of Koehn to include the concept teaching of

TIA/EIA such that the puncturing pattern device would be able to puncture the data set in

accordance with a standard puncturing pattern and in accordance with an alternative puncturing

pattern differing from the standard pattern only by disabling puncture of an individual data

element that would be punctured according to the standard pattern as recited in the claim. The

suggestion/motivation to do so would have been to enable the system to utilize the standard

Turbo Codes for base code rate of ½.

Regarding claim 17, it is inherent that the coder of Koehn (a rate matching converter

12 in Fig. 3) must comprise a microprocessor operatively coupled to the puncturing pattern

device (a puncturer PR), capable of transmitting a plurality of control commands to the

puncturing pattern device, wherein the plurality of control commands comprise information

regarding disable puncturing since not all the bits are selected for puncturing (col. 5, ll 40-44).

Regarding claim 18, Koehn teaches that the puncturing pattern device (a puncturer PR in

Fig. 3) is capable of operating in a puncturing data mode (puncturing selected bits) and a disable

puncturing data mode (not puncturing unselected bits) (col. 5, ll 40-44).

Regarding claim 19, Koehn fails to teaches that the puncturing pattern device (a

puncturer PR in Fig. 3) utilizes a first puncture pattern when operating in the puncturing data

mode and a second puncture pattern when operating in the disable puncturing data mode.

However, TIA/EIA, as shown in Table 2.1.3.1.6.2-1, teaches Turbo Code symbol puncturing technique used in a cellular network including a base code rate of ½ having a a first puncture pattern (not defined, reads on pattern "111110101") for puncturing data mode and a second puncture pattern (not defined, reads on pattern "111111111") for disable puncturing data mode (page 2-116, ll 9-18).

Given the teaching of TIA/EIA, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Koehn to include the concept teaching of TIA/EIA such that the puncturing pattern device (a puncturer PR in Fig. 3) would utilize a first puncture pattern when operating in the puncturing data mode and a second puncture pattern when operating in the disable puncturing data mode as recited in the claim. The suggestion/motivation to do so would have been to enable the system to utilize the standard Turbo Codes for base code rate of ½.

Response to Arguments

13.   Applicant's arguments filed 1/24/06 have been fully considered but they are not persuasive.

a)   In the remarks regarding claim 12, the applicant argues that the step of selecting a transmission data frame a plurality of standard data frames is not taught by Koehn.

In response, with a different interpretation of Koehn reference, Koehn teaches that a transport data block 14 (a transmission data frame) has a pre-determined size of an amount of data which can be carried by bursts of data and is a different size of the encoded data frame, col. 1, ll 43-48 and col. 4, ll 66-col. 5, ll 4. Therefore, the data block 14 must be selected from a

number of frames, i.e. the size of the data block 14 (a transmission data frame) must be selected

from a set of available frame sizes (a plurality of standard data frames) that can carry busts of

data as part of the size determination wherein the set includes at least a pre-determined size and

an encoded data frame size.

It is noted that the features upon which appellant relies (i.e., different transmission data

frame "sizes" are used or selected for different applications) are not recited in the rejected

claim(s). Although the claims are interpreted in light of the specification, limitations from the

specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d

1057 (Fed. Cir. 1993).

In addition, claim 12 does not further specify how the selecting step in b) is performed.

Thus, Koehn teaches the limitation as recited in the claim and the rejection is sustained.

Conclusion

14.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
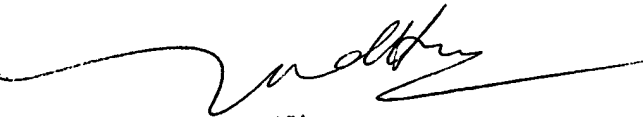
15.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
April 3, 2006

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